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# GENE CLONING AND DNA ANALYSIS

## An Introduction

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(Continued.) (2) The initial product of cloning using embryonic stem cells: an animal made up of a mixture of cells with different genotypes.

**Chromosome** One of the DNA-protein structures that contains part of the nuclear genome of a eukaryote. Less accurately, the DNA molecule(s) that contains a prokaryotic genome.

**Chromosome walking** A technique that can be used to construct a clone contig by identifying overlapping fragments of cloned DNA.

**Cleared lysate** A cell extract that has been centrifuged to remove cell debris, subcellular particles and possibly chromosomal DNA.

**Clone** A population of identical cells, generally those containing identical recombinant DNA molecules.

**Clone contig approach** A genome sequencing strategy in which the molecules to be sequenced are broken into manageable segments, each a few hundred kilobases or a few megabases in length, which are sequenced individually.

**Clone fingerprinting** Any one of a variety of techniques that compares cloned DNA fragments in order to identify ones that overlap.

**Codon bias** The fact that not all codons are used equally frequently in the genes of a particular organism.

**Combinatorial screening** A technique that reduces the number of PCRs or other analyses that must be performed by combining samples in an ordered fashion, so that a sample giving a particular result can be identified even though that sample is not individually examined.

**Compatibility** The ability of two different types of plasmid to coexist in the same cell.

**Competent** A culture of bacteria that has been treated to enhance their ability to take up DNA molecules.

**Complementary** Two polynucleotides that can base pair to form a double-stranded molecule.

**Complementary DNA (cDNA) cloning** A cloning technique involving conversion of purified mRNA to DNA before insertion into a vector.

**Conformation** The spatial organization of a molecule. Linear and circular are two possible conformations of a polynucleotide.

**Conjugation** Physical contact between two bacteria, usually associated with transfer of DNA from one cell to the other.

**Consensus sequence** A nucleotide sequence used to describe a large number of related though non-identical sequences. Each position of the consensus sequence represents the nucleotide most often found at that position in the real sequences.

**Contig** A contiguous segment of DNA sequence obtained as part of a genome sequencing project.

**Continuous culture** The culture of microorganisms in liquid medium under controlled conditions, with additions to and removals from the medium over a lengthy period of time.

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